

**REMARKS/ARGUMENTS**

Claims 1, 3-21 and 23-25, now stand in the present application, claims 1, 3, 14, 21 and 23-25 having been amended, and claim 2 having been canceled.

Reconsideration and favorable action is respectfully requested in view of the above amendments and the following remarks.

In the Office Action, the Examiner has rejected claims 1, 14, 21, 24 and 25 under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicants regard as the invention. As noted above, Applicants have amended the claims in order to correct the technical deficiencies pointed out by the Examiner. Accordingly, the Examiner's rejection of the claims under § 112, second paragraph, is believed to have been overcome.

The Examiner has also rejected claims 1-6, 8-21 and 23-25 under 35 U.S.C. § 102(b) as being anticipated by Corne et al. (hereinafter "Corne"). In view of the above-described claim amendments, the Examiner's §102 rejection of the claims is believed to have been overcome, as will be described in greater detail below.

Applicants' invention determines the fitness vector to use in a Pareto method in order to solve resource allocation problems where the (main) concern is to ensure that each grouping (corresponding to, for example, the tasks or traffic to be assigned to a particular processor, device or router, etc.) satisfies a particular constraint (e.g. that the load should not exceed a certain threshold amount which the respective device etc. can

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cope with). The solution provided by the present invention is to specify that the fitness vector should comprise (at least) as many elements as the groupings to be formed.

This provides a very simple yet effective way of allowing the problem to be tackled in a Pareto manner which can then be solved efficiently and effectively.

As mentioned in Corne a different approach for forming a fitness vector is taken in which the number of elements is (for normal systems) much less than would typically be the case when adopting the present invention (e.g. a typical network might contain hundreds of routers and would therefore require a fitness vector with (corresponding) hundreds of elements - in Corne one element covers (in a combined manner) the extent to which certain constraints are not met by a particular trial solution, namely "Objective a" (see Corne, page 13, lines 15-18). Note also that in the other principle example given in Corne (the ADDMP problem described at page 24, line 12 through page 25, line 21) although the fitness vector to be used is not explicitly described, it is clear from page 25, lines 1-2 that the envisaged fitness vector would have, for example, only two elements, namely one representing the worst delay and one representing the median delay in client/server access time. Thus nowhere in Corne is there a teaching, suggestion or motivation to specify a fitness vector for which each element corresponds to a respective grouping in a resource allocation problem, as now required by the present claims.

More particularly, to emphasize these distinctions over Corne, independent claims 1, 14, 21 and 23-25 have all been amended. For example, the features of canceled claim 2 have been incorporated into claim 1 which now more clearly recites

the patentable distinctions over Corne that “calculating for each trial solution a fitness vector comprising  $m$  elements, each of which is indicative of whether the corresponding constrain condition of a corresponding one of the  $m$  groups has been satisfied by the trial solution.” Similar amendments have been made to all of the other independent claims.

It is noted that the Examiner has cited 5 portions of Corne as teaching the features of claim 2. However none of these citations teach providing a fitness vector having as many elements as there are groupings, each of which corresponds to a respective resource (e.g. a processor, computer or router, etc.). Thus, page 2, lines 4-6 merely defines a multi-objective problem as being one having more than a single objective; page 3, line 30 to page 4, line 13 merely defines a multi-objective Pareto method for comparing trial solutions of multi-objective problems such that one solution may dominate or be dominated by another solution, or the two solutions may be respectively non-dominated by each other. Page 9, lines 23-30 describe a method for comparing two multi-objective solutions using a sort of scalarising approach with equal weighting given to the multiple objectives. Page 16, lines 5-22 describes a particular example of comparing three fitness vectors (note that each of these has just the three elements, of which only the first element represents the total extent to which various constraints are met). Finally, page 28, lines 4-19 describe ways of comparing fitness vectors and does not give any teaching about how to create the vectors in the first place, or what form those vectors should have, except that they should have multiple elements.

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Accordingly, each of amended independent claims 1, 14, 21 and 23-25 and their respective dependent claims are believed to patentably define over Corne.

The Examiner has also rejected claim 7 under 35 U.S.C. § 103 as being unpatentable over Corne in view of Buckzak et al. (hereinafter "Buckzak"). Applicants respectfully traverse the Examiner's § 103 rejection of claim 7.

The Examiner has cited Buckzak merely for disclosing a non-reserve proportion of the new population as generated using a roulette wheel selection method. Accordingly, it should be clear that Buckzak does not solve the deficiencies noted above with respect to Corne. Accordingly, claim 7 is believed to patentably define over the cited references taken either singly or in combination.

Therefore, in view of the above amendments and remarks, it is respectfully requested that the application be reconsidered and that all of claims 1, 3-21 and 23-25, now standing in the application, be allowed and that the case be passed to issue. If there are any other issues remaining which the Examiner believes could be resolved through either a supplemental response or an Examiner's amendment, the Examiner is respectfully requested to contact the undersigned at the local telephone exchange indicated below.

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Respectfully submitted,

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